

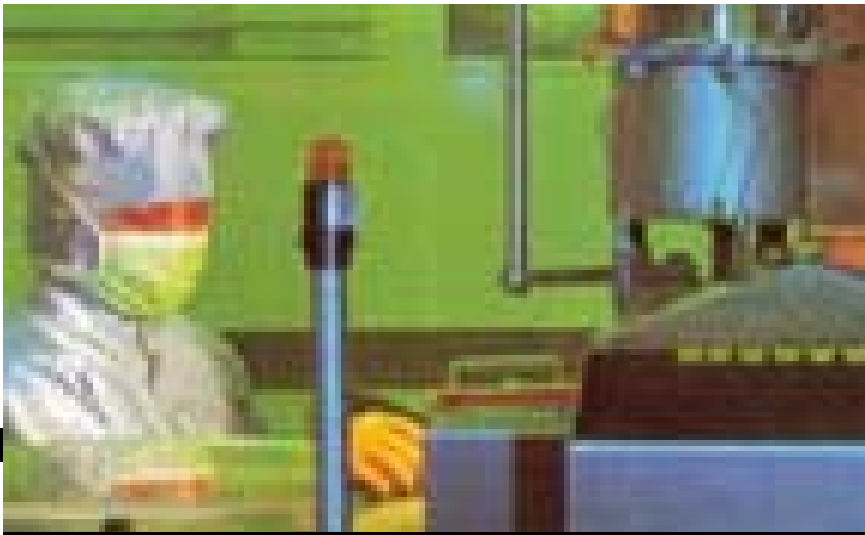


Technical Innovations To Enhance Laboratory Safety and Reduce Energy Usage

Greg DeLuga, P.E.

SIEMENS

Primary Goal: Achieve Optimum Critical Environmental Control To:



- 1. Detect The Hazard***
- 2. Respond Quickly***
- 3. Attain The Optimum Resultant***



Detect The Hazard

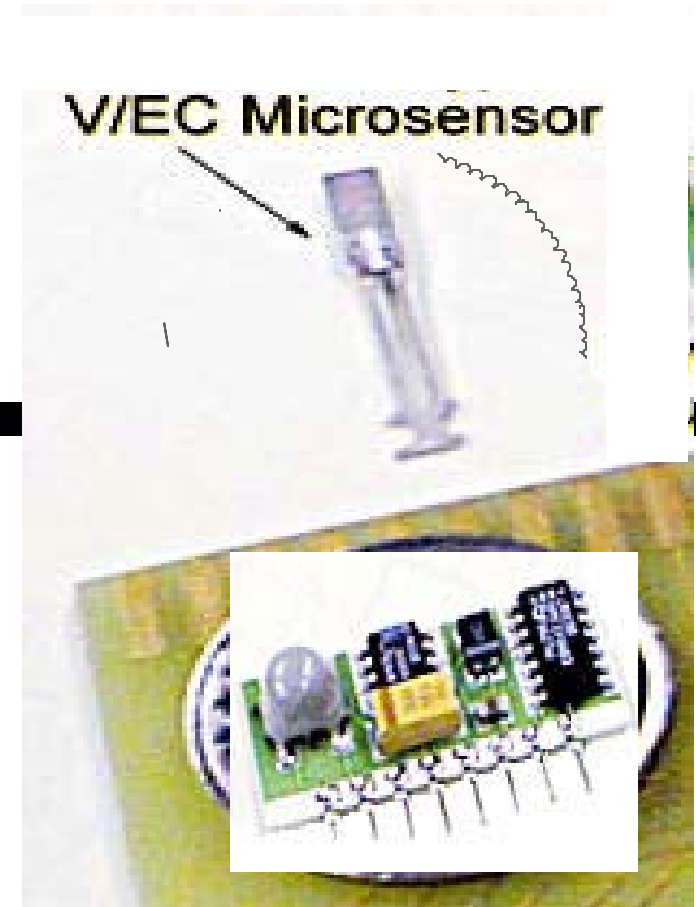
New Miniature Gas Sensors:

Combines Micro-Electronics
& Optics “Lab on a Chip”

Detects a wide range of air
contaminant ‘signatures’

Gasses **Bio-Hazards**

Voltametric / ElectroCatalytic



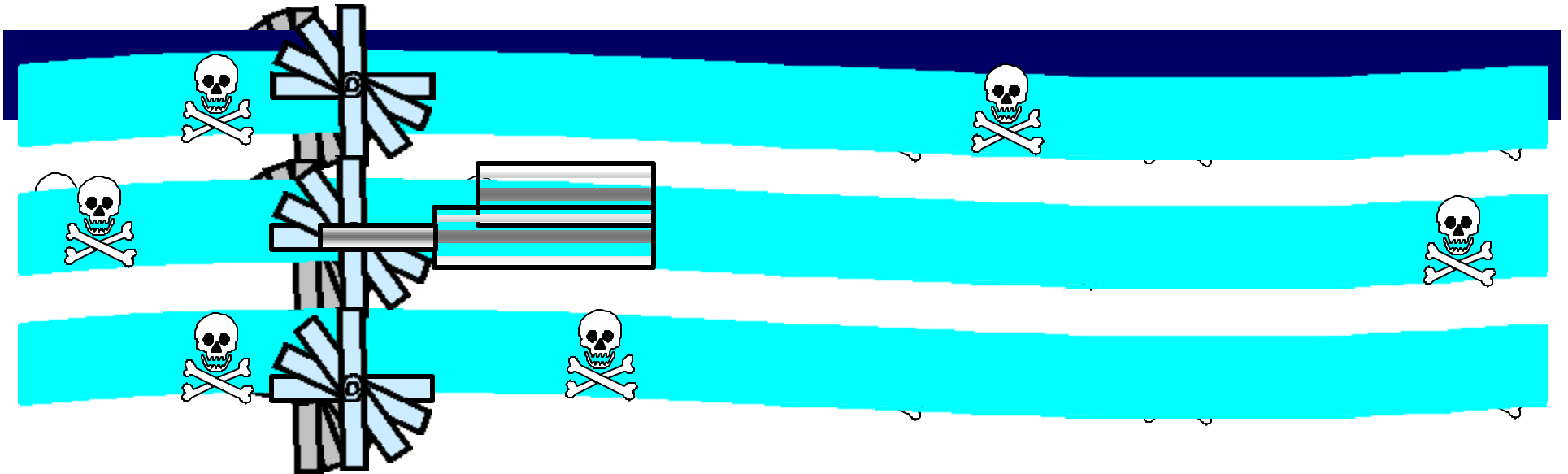
Detect The Hazard

Wireless Sensors ! ! !



Respond Quickly

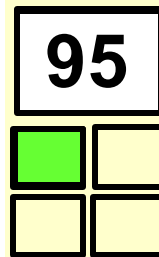
High Torque / Speed Linear Electric Actuators



Reposition Dampers in seconds

Attain The Optimum Resultant

**Automatic
Face Velocity
Adjustment
Based on Hazard**



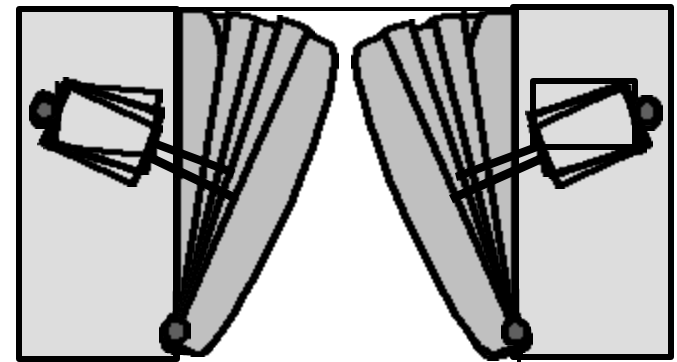
Attain The Optimum Resultant

Prevent Re-Entrainment
of Chemical Exhaust

Control Exhaust
Velocity Based On:

- Wind Direction
- Wind Speed
- CFM

Variable
Discharge
Nozzle



Attain The Optimum Resultant

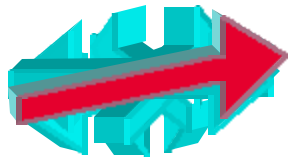
CFM
 Ft^3 / M

Colored Smoke Bombs

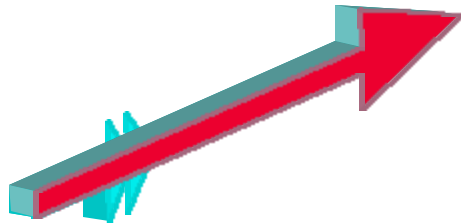
(With Cooperative Weather)

Notify Everyone!

Discharge Area



Wind Direction



Wind Velocity

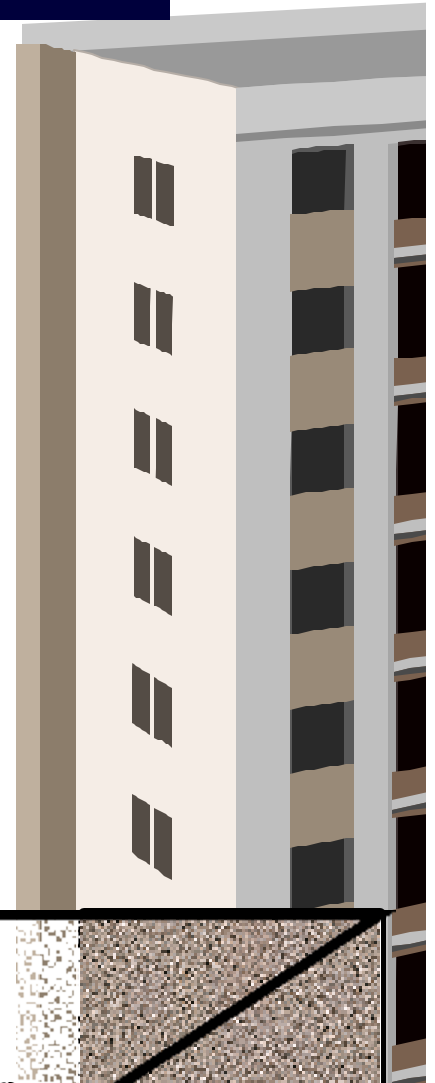
Discharge
Area

Exhaust
Controller

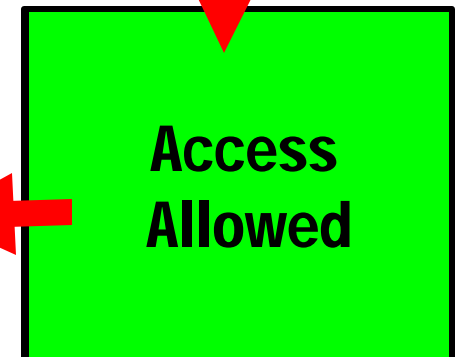
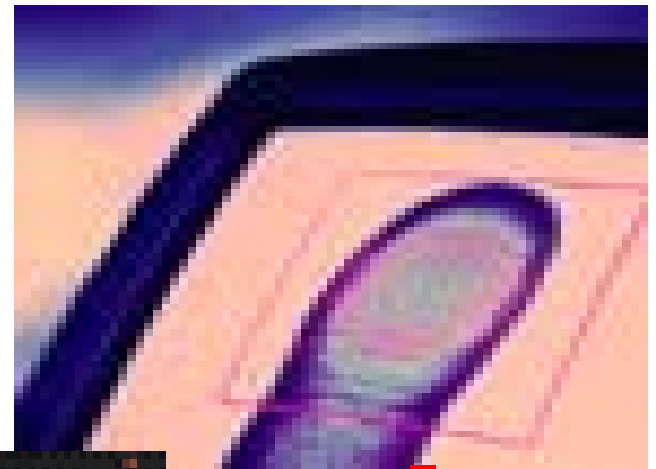
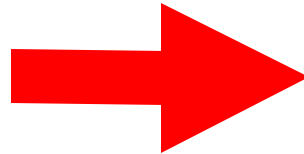


Variable
Discharge
Nozzle

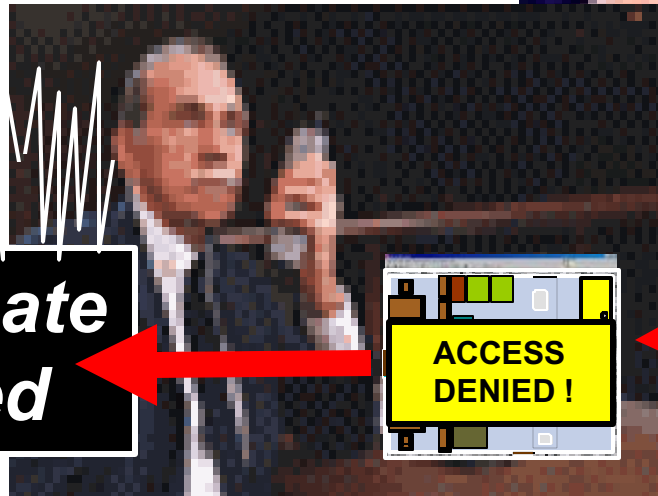
CFM



Biometric Sensors:



***Fingerprint, Time, Date
& Location Recorded***



***Technical Innovations
To Enhance Laboratory
Safety and Reduce
Energy Usage***

Thank You

Greg DeLuga, P.E.

SIEMENS